Ancillary Devices and Connections to Fire Alarm Systems

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Ancillary Devices and Connections to Fire Alarm Systems

1- Understanding Ancillary Systems - Limitations/Objectives

2- Demystifying Codes & Standards

3- Today’s Typical Applications & Tomorrow’s Challenges

4- Digital Ancillary Connectivity - BACnet Scenario

5- Mitigating Risk and Improving Reliability
Ancillary Devices and Connections to Fire Alarm Systems

6- Magnetically Held Locking Devices

7- Access Control Systems & Emergency Response Plans

8- Smoke Management & Smoke Control

9- Video Smoke Detection & Analytics

10 – Ancillary System The “Take Away”
LIFE SAFETY TECHNOLOGY PRIMARY GOALS

- Protect Life
- Alleviate Human Suffering & Hardship
- Ensure Appropriate Communication
- Enable Continuity of Operations
- Warn Occupants
- Initiate Evacuation
- Time to Defend or Escape

Understanding Ancillary Systems - Limitations/Objectives

Life Safety Technology Primary Goals
1 Understanding Ancillary Systems

What is an Ancillary System?

- Capability to provide life safety applications
- System or device is actuated by the fire alarm system
- Systems that can be utilized to enhance the life safety of the facility

Systems that can be utilized to *enhance the life safety of the facility*
2
Demystifying Codes & Standards

Exit Nomenclature – “Consider the Means of Egress”

“Smoke Management”


Codes & Standards are APPLICATION SPECIFIC

Use the correct nomenclature for the specific scope
3
Today’s Typical Applications & Tomorrow’s Challenges

Fire incident release all, pressurized doors, impeding egress

Most Common Fire Alarm Connected Ancillary
Access Control Systems
HVAC Mechanical Systems
Emergency Power Systems

Supply fan shut-down, stair pressurization, smoke exhaust
Annunciation of supervisory: “Generator Running” & “Generator Trouble”
DISPARATE BUILDING SYSTEMS PROCESS AND STORE A LARGE AMOUNT OF DATA THAT IS POTENTIALLY USEFUL TO EMERGENCY RESPONDERS. TYPICALLY ALL THIS INFORMATION IS BOTTLED UP IN THE BUILDING & NOT LEVERAGED FOR EMERGENCY RESPONSE.

INDUSTRY STAKEHOLDERS HAVE INDICATED A REAL NEED FOR EASIER LIFE SAFETY INTEGRATION OF ANCILLARY SYSTEMS.
4
Digital Ancillary Connectivity

Initially developed for HVAC Specific Applications for Building Integration

“The New Way” - BACnet Connectivity via Internet Protocol LAN

BACnet Integration
For Life Safety
Reliable, Efficient & Easy to Commission

BACnet Integration
Mindful Collaboration

Mircom™
Mitigating Risk & Improving Reliability

INTEGRATED TESTING COORDINATOR QUALIFICATIONS

Leverage the new CAN/ULC-S1001-11 Standard

Improve Communication Training - Interoperable Exchange of Ideas

S1001 INTEGRATED SYSTEMS TESTING OF FIRE PROTECTION & LIFE SAFETY SYSTEMS

Utilize the new S1001 Integrated Systems Testing Standard to ensure Reliable Life Safety System Performance

S1001 Appendix B Guideline For Preparing Integrated Systems Test Plans

Fire Alarm Technicians dialogue with Ancillary System Technicians
6

Magnetically Held Locking Devices

Re-activate mag-locks with manually operated switch while fire alarm condition is active........
check that mag-lock is still de-activated
6 Magnetically Held Locking Devices

Jurisdiction Specific

3.4.6.15 (1) waive for Banks & Mercantile

3.4.6.16 (2) Prevent Locking when area is open to the public

3.4.6.16 (3) “The Door Shall Not Be Locked At Any Time That The Public Is Present”

Ancillary control of Mag-Locks is complicated

Reference the 2006 OBC

Div. B 3.4.6.15

“Public Is Not Present”
Access Control Systems & Emergency Response Plans

1. Install Proximity Readers at all "Muster Stations" outside of the facility.

2. Utilize Access Control Anti-pass-back features to enable occupant load visibility.

3. Place Security Work-Station in the same location as the Fire Alarm Display & Control Centre.

4. Improve visibility with BACnet communication between Fire Alarm, Access Control & Video.

Access Control Systems can be utilized as part of an Emergency Response Plan Incident Procedure.
8
Smoke
Management &
Smoke Control

Smoke Management & Control In retrofit – High probability of Change Orders
8- Smoke Management & Smoke Control

**Figure 2: Sandwich smoke-control system.**

**FIGURE A.5.5.1.1.1  Arrangements of Smoke-Control Zones.**
### LIFE SAFETY MODE SET UP CHART

| FIRE ZONE | DESCRIPTION | OZW 3,5,7 | OZW 4,6 | OZW 4,6 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | OZW 3,5,7 | AHU | AHU | AHU | AHU | AHU | AHU | AHU |
|-----------|-------------|-----------|---------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|-------|-------|-------|-------|-------|-------|
| OZW 3,5,7 | TOWER OUTER ZONE WEST FL * 3,5,7 | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #1 |
| OZW 4,6 | TOWER OUTER ZONE WEST FL * 4,6 | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #2 |
| OZW 4,6 | TOWER INNER ZONE WEST FL * 4,6 | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #4 |
| OZW 4,6 | TOWER INNER ZONE EAST FL * 4,6 | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #8 |
| OZW 4,6 | TOWER OUTER ZONE EAST FL * 4,6 | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #10 |
| 2FC | PODIUM 2ND FL CENTRAL | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #12 |
| 1FW | PODIUM 1ST FL WEST | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #14 |
| 1FC | PODIUM 1ST FL CENTRAL | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #15 |
| 1FE(N) | PODIUM 1ST FL EAST NORTH | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #16 |
| 1FE(S) | PODIUM 1ST FL EAST SOUTH | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #17 |
| IK/P | PODIUM 1ST FL W KITCHEN | P | P | E | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | B | AHU | #21 |
8- Smoke Management & Smoke Control

D1 Open

D2 & D3 Closed

D4 Closed

D7 Closed
8- Smoke Management & Smoke Control

The Old Way

Return Air Fire Alarm Damper Actuator Relay

Damper Status Monitor Modules

Supply Air Damper Actuator Relay

Return Air Smoke Damper Pneumatic Actuator

Supply Damper Actuator Electrical Supervisory Device

Return Air Smoke Damper Actuator Electrical Supervisory Device

Supply Air Damper OPEN End Switch Supervisory Device

Return Air Damper CLOSED End Switch Electrical Supervisory Device

Supply Air Damper OPEN End Switch Electrical Supervisory Device

Return Air Damper OPEN End Switch Electrical Supervisory Device
Smoke Control provided to restrict smoke movement
Smoke Management provided to manage smoke to enable a tenable environment for exiting
9

Video Smoke Detection & Analytics

VSD typically applied as **visual verification ancillary device**

VSD enables unrivalled “Incident Visualization Tools” for first responders

UL listing is available on some VSD solutions—however, no ULC listing yet
Video Smoke Detection
is currently utilized as an ancillary system
Provides Incident Visualization Tools
For Emergency Responders
1. Ancillary Systems can be utilized to enhance the life safety of the facility

3. Most Common Ancillary Applications
   - ACS, HVAC & Emergency Power

2. Codes & Standards are APPLICATION SPECIFIC
   - Use the correct rules for the specific scope

10. Ancillary Systems
    The “Take Away”

7. Access Control Systems can be utilized as part of an ERP Incident Procedure

8. Smoke Control & Smoke Management enables a tenable environment for exiting

9. Video Smoke Detection is currently utilized as an ancillary system

10. We can leverage ancillary systems to protect society from the ravages of Fire
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THANKS FOR LISTENING