AUDIO DISTRIBUTION
AND IT’S IMPACT ON SAFETY

Presented by:
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Lencore
INTRODUCTION

AUDIO DISTRIBUTION AND IT’S IMPACT ON SAFETY
<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why Are We Here?</td>
<td></td>
</tr>
<tr>
<td>How Did We Get Here?</td>
<td></td>
</tr>
<tr>
<td>Underwriters Laboratories</td>
<td></td>
</tr>
<tr>
<td>Evolution of Sound Masking</td>
<td>Why It Matters</td>
</tr>
<tr>
<td>Evolution of Paging</td>
<td></td>
</tr>
<tr>
<td>What is Mass Notification for Audio?</td>
<td></td>
</tr>
<tr>
<td>Audio Distribution and NFPA</td>
<td></td>
</tr>
<tr>
<td>Code Adoption</td>
<td></td>
</tr>
</tbody>
</table>
WHY ARE WE HERE?

How Did We Get Here?  

History of Lencore  

Early Days of Paging & Sound Masking
AUDIO DISTRIBUTION

What Is It Used For?  
How Does It Get Installed?  
Components Pieces

Controls and Maintenance  
Paging – Audio (Muzak) – Sound Masking
AUDIO DISTRIBUTION
EVOLUTION OF SOUND MASKING

Why It Matters?

Acoustics in the Office

Why Do People Buy Sound Masking?


1980's - 1990's Comfort

1990's - 2000's Productivity

2005 - Today Safety
HOW DOES SOUND MASKING WORK?

AUDIO DISTRIBUTION AND IT’S IMPACT ON SAFETY

2018 BICSI Fall Conference & Exhibition
Background noise & indirect speech no longer intelligible

Direct speech

Indirect speech

Background noise

Lencore Sound Masking
How Do We Make Speech Privacy Comfortable in the Real World?
UNDERSTANDING COMFORT

Audio Distribution and It’s Impact on Safety

Origin of Sound
Good Wrap Around
Multiple Noise Sources
Uniformity of Sound
Tuning Flexibility
ACHIEVING PRIVACY

INDUSTRY STANDARD - ASTM E-1130

Measured by a Sound Meter

No Speech Privacy
AI of .05 or less

Normal Speech Privacy
AI of .2 or less

Confidential Speech Privacy
AI greater than .2
## EVOLUTION OF PAGING

<table>
<thead>
<tr>
<th>What Did Those Systems Look Like?</th>
<th>How Lencore Got Into the Paging Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networks</td>
<td>Control</td>
</tr>
</tbody>
</table>
SAFETY
AUDIO DISTRIBUTION AND IT'S IMPACT ON SAFETY
HOW WE MET NFPA

Before the Code... Requirement to Mute the Sound Masking

Look at the Audio Design

Align with NFPA
HOW WE MET NFPA

[Images of NFPA 72 books]
MEETING CODE AND STANDARD

APPLE TV
HD TV
SOUND BAR
DVR
WHAT IS UL2572

**UL 2572** is an equipment standard that sets the standards and criteria for how the control units for mass notification systems will be designed and tested. Not only will the control units be tested, but all of the peripheral supporting equipment that will be connected to the control units will be tested as a complete system.
WHAT IS UL2572

SOME EXAMPLES OF TESTING CRITERIA FOR MEETING UL2572

- Mechanical construction
- Branch circuit protection
- Field wiring terminations
- Internal wiring
- Switches, relays
- Power supplies/UPS
- Leakage testing
- Jarring
- Dielectric breakdown
- RF interference
- Monitoring for integrity and Trouble signals
- Communication links
- Prerecorded messages
- Audio Harmonic distortion
- Variable Temperature/Humidity
- Endurance testing
- Electrical transients
- Production line testing
What is UL2572

Typical Operational Features Between a Mass Notification System and a Fire Alarm System

Use Case 1 - Mute masking  
Use Case 2 - Audio reinforcement  
Use Case 3 - Full FACP override control
WHAT IS UL2572

Use Case 1 - Mute masking

- Signal from the FACP will instruct the MNS to mute all masking to allow for better intelligibility of the FACP audio
WHAT IS UL2572

Use Case 2- Audio reinforcement

- Audio from FACP is reinforced by the MNS system
- Audio from the MNS is reinforced by the FACP. Typically in FACP override scenarios (Active Shooter).

USE CASE 2
(AUDIO REINFORCEMENT)
- AUDIO TO FACP
- PTT TO FACP

(AUDIO REINFORCEMENT)
- MUTE MAPPING
- AUDIO FROM FACP
- PTT FROM FACP

2B

2A
WHAT IS UL2572

Use Case 3- Full FACP override control

- MNS emergency signals sent to FACP to shut down FACP actions
- FACP can still override the MNS
- Fault Sharing in both directions
ELIMINATION OF RISK AND CONFUSION
BY USING AND IMPROVING CODES AND STANDARDS
MEETING CODE AND STANDARD
MEETING CODE AND STANDARD

Round

Lever
VALUE

AUDIO DISTRIBUTION AND IT’S IMPACT ON SAFETY
NFPA 72
Audio Distribution and its Impact on Safety
SEQUENCE FOR CODE

ALARM  TURN OFF  SILENCE  ANNOUNCEMENT

ONE AUTOMATIC STEP TO MEET CODE
SYSTEM BUILD

AUDIO DISTRIBUTION AND IT'S IMPACT ON SAFETY
CODE ADAPTION

Risk Mitigation
Best Practice
Sustainable Ideas
Furthering NFPA’s Role

Importance and Future of Safe Buildings
LIFE SAVING
AUDIO DISTRIBUTION AND IT'S IMPACT ON SAFETY
CODE BODY

Audio Distribution

Mute Masking

Mass Notification

Codes and Standards

(Can’t Be a Code Body if Standards Don’t Matter)
SYSTEM COMPONENTS

Headend  OP  Audio Interface  Field PoP
Q&A

PLEASE RAISE YOUR HANDS FOR ANY QUESTIONS!