This is AMCA
Introduction to Air Movement and Control Association International
Lisa Cherney

Education Manager, AMCA International

• Joined AMCA in February 2019
• Responsible for development of AMCA’s education programs; staff liaison for the Education & Training Committee
• Projects include webinars, AMCA’s online learning platform programming, presentations at trade shows, PDH/RCEP account management, and AMCA’s Speakers Network
• Previous career in meeting, event, and incentive travel planning & management
Introduction to AMCA

- Not-for-profit manufacturer association
- Established 1917 with six member companies in USA
- Now global with almost 400 companies
The AMCA Mission:

To advance the knowledge of air systems and uphold industry integrity on behalf of AMCA members worldwide.

Advocacy  Certification  Education
Global reach. Local touch.

Truly international membership – Nearly 400 members worldwide

- 157 North America
- 31 Europe
- 162 Asia
- 7 Latin America
- 36 Middle East
AMCA Scope of Products

- Fans for residential/commercial
- Fans for fire/smoke control
- Fans for industrial processes
- Air Curtains
- Fans for power-plants
- ...and more
- Fixed and adjustable louvers
- Fire and smoke dampers
AMCA Value Chain
What AMCA provides members and the industry

- International standards & publications
- Testing & accreditation
- Certification & ratings
- Advocacy & Industry relations
- Marketing & education
Certification

Why specify certified products?

Increased reliability of ratings

Catalogs are up to date and accurate

Apples-to-apples comparisons

“Check testing” ensures ratings are accurate over time.
AMCA certifying test labs
www.amca.org
AMCA’s Online Learning Platform

AMCA insite™ Online Education Portal Now Open!

- Learn at your own pace online
- Variety of topics available
- Take custom educational online modules
- View AMCA insite webinars
- PDH credits available

Let’s go!

www.amca.org/educate
Kristen Neath

Canadian National Sales Manager – Commercial Industrial, Environmental Markets

Bachelors of Engineering in Mechanical Systems Engineering

Extensive knowledge of sheet metal design & fabrication

Expertise in reducing mechanical HVAC noise through design & application of noise control products
Kinetics Noise Control

Established in 1958

Corporate office in Dublin OH with facilities in California, Ontario, and Hong Kong

Manufacturer of noise and vibration control products
Market Divisions

1. HVAC Vibration Isolation - Mechanical Equipment Isolation
2. Seismic and Wind Restraint - Seismic/Wind engineered solutions and product
4. Room Acoustics - Interior space reverberant and room tuning
5. Industrial - In-Plant airborne noise and vibration control
6. Environmental - Outdoor airborne noise control, mechanical equipment, O & G
7. Home & Pro Theatres - High-end home theaters sound absorption, vibration isolation
8. Airflow Attenuation - vent/fan/duct silencers, acoustic louvers
Indoor/Outdoor Noise Control

Indoor:
- Noise travelling through supply and return duct work serving the inside of a building

Outdoor:
- Noise generated by HVAC equipment with a receiver and path outdoors
Why Acoustics?

- HVAC equipment is one of the major sources of interior noise in a building.
  - Contributes to the overall level of occupant satisfaction.
- HVAC equipment can also be a noise concern outside of the building.
  - Municipal by-laws for sound levels outside of the building.
- Incorrect selection of acoustic products will impact the performance of the HVAC system.
HVAC System Noise

- Noise is unwanted sound.
- Sound is energy (propagating as a wave) travelling through a fluid or solid.
- In a solid, this can be noise transmitted through building partitions.
- In a fluid, this can be noise transmitted through the HVAC system.
- Source, Path, and Receiver.
HVAC System Noise: Source

- Airborne sound is generated by a vibrating surface or by a turbulent fluid stream.
- Sound waves in air are variations in pressure above and below atmospheric pressure.
- Sound levels measured by the rate at which acoustical energy is released are referred to as: **Sound Power Level**
Characteristics of the Sound Wave

**Frequency (Pitch)**
- Measured in Hertz (Hz)
- For most HVAC noise control: 63/125/250/500/1k/2k/4k/8k

**Wavelength**
- Difference between successive peaks
- \( \lambda = c / f \)
HVAC System Noise: Path

Indoor Noise Path

- Path A: Structureborne path through floor
- Path B: Airborne path through supply air system
- Path C: Duct breakout from supply air duct
- Path D: Airborne path through return air system
- Path E: Airborne path through mechanical equipment room wall

Outdoor Noise Path
HVAC System Noise: Receiver

Sound Levels in the rooms are dependent on the size, number of sources, and acoustic properties of the space.

Sound Levels outdoors are dependent on where the receiver is standing relative to the source (distance and angle) nearby obstructions.

Measured as: **Sound Pressure**
Noise Criteria (NC) Level

Indoor acceptable noise levels are usually classified as an NC level

<table>
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<th>Noise Criterion</th>
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<th>125</th>
<th>250</th>
<th>500</th>
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A-Weighted Response (dBA)

Filters the spectrum to simulate the frequency response to sound by the human ear

Deemphasizes the low frequencies, compensating for the lower sensitivity of the human ear to low frequency

Typically used for environmental/ outdoor noise design criteria

<table>
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<th>Frequency (Hz)</th>
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<td>75</td>
<td>70</td>
<td>67</td>
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</table>
The Silencer/Attenuator/Sound Trap

- Ducted, replaces section of ductwork
- Used for indoor and outdoor noise control – Supply, return, outdoor, and exhaust air
NOISEBLOCK™ Acoustic Panels

Used for acoustic plenums, equipment enclosures, barrier walls
KNP Acoustic Panels

Attached to existing structure for noise absorption

Equipment yards, mechanical/generator rooms
Acoustic Louvers

Control noise travelling through building envelope

Used for outdoor/exhaust air and equipment enclosures
Applications Example #1

Main – Rear Entrance

Central Utility Plant
111 dBA

136’-0”
87’-0”
Applications Example #1

- Acoustic Louver
- 24” thickness
- No line of sight (security)
- Maximum attenuation
Applications Example #2
Applications Example #2

NOISEBLOCK™ Door

NOISEBLOCK™ Panel

12” Acoustic Louver

NOISEBLOCK™ Pergola
Questions?

Survey QR code/link:

https://www.surveymonkey.com/r/AMCA_WHVACR_Webinar_Feb18_2022
We Create Quiet that Improves the Quality of Life

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