MINUTES

Conference Call

Acoustic –Small Task Group Meeting- Scoping
August 20, 2018
3:00 PM to 5:00PM

Attendees

Earl Delph, Allegion	Michelle Cline, ASSA ABLOY
Matt Phillips, Allegion	Robert Strong, dormakaba
Dick Kreidel, ASSA ABLOY	Michael Tierney, BHMA
Chris Senger, ASSA ABLOY	Karen Bishop, BHMA
Mandy Swofford, ASSA ABLOY	

Note: the call was recorded for purposes of establishing appropriate minutes (do to the technical content). The minutes below highlight the areas of information provided by Curt Eichelberger. Information Italicized was information provided by the subcommittee members during the call.

Introduced that a draft scope has been developed and noted that the direction is to develop a standard that focuses on individual products, at the component level of the system, rather than the complete acoustic system. Meaning a lock with a rating, a door with a rating… not a combination. So that people can define acoustics for their individual products.

Areas of interest to the group, are what issues HVAC has encountered during development of acoustic standards and what the group should be mindful of.

Question was posed as to if we are even on the right track in the title of the standard- in calling it acoustic? Tabled to address later, as we move through the development process.

Discussed Issue in mkt in with sound these product make – hotel and healthcare.

Curt Eichelberger -When you look at HRI products (HVAC) - most of the sound standards don't have to deal with transient sounds or impacting sounds.

In order to develop an appropriate acoustic standard you must have a measurement, and the measurement will depend upon the acoustical effect you want to quantify. The acoustic effect could be something like startling someone from sleep or annoyance within a commercial building that interferes with work that derives from the operation of the door. The nature of these sounds is very impulse or transient in nature. This is not where he is an expert, however, his advice is to develop psycho-acoustic criteria for evaluating the acoustical effect the product is concerned with. There are many ways to measure sound. And with impulse or transient sounds it is very complex. Short duration sounds occur over such a short period of time that perceived loudness decreases or the perceived annoyance decreases with the shortness of the impulse.

Recommends a sound consultant who is an expert in criteria for impulsive noise and the types of measurements to quantify that criteria. Then with that measurement, you could develop a rating standard for the product.

HRI has rating standards and application standards, and then certification rules. The rating standard explains the sound the product makes. The association decides which products have their sound certified, via third party, who would validates the manufacturer's assigned rating.

HRI 275 is an application standard. Meaning after you have a product or certified product that has a measured or rated sound the product generates, this addresses how you calculate the effect from that sound in a real application. HRI 275 deals with how you take a sound rating from a manufacturer's product and you use that to calculate the A-weighted sound pressure level at some distance away from the product and then you can compare that against a criteria. Criteria that you would find in an ANSI standard. There is ANSI criteria established for items like gunshots, sonic booms and all sorts of transient sounds, but the problem is that there is no existing criteria, that he is aware of, for our (BHMA) product acoustic effects.

In developing a metric it, may be, for (BHMA) product, a peak A- weighted sound pressure level, but there are a lot of ways to measure. The measurement is of sound level- how loud it is or how much it transfers. However, there is a difference; there is physical measurement, for which there are highly developed techniques, but it does not address the physical measurement's *effect* on a human. That is the psycho-acoustic effect criteria; the human perception or annoyance of sound. And that can be different than the actual physical measurement of sound. Example: ASHRAE has standards for determine noise criteria for building interiors that explains what kind of measurement is required.

So what is the BHMA product psycho- acoustic criteria or the background for the criteria?

Dick Kreidel: Centers for Medicare and Medicaid have required that centers they fund reduce the noise level in healthcare environment – have identified constant door latching/unlatching as having a negative impact on patient health. But federal gov has not provided means for how to accomplish that...but requirement to reduce the noise is based on university research.

Noise comes in many forms, and within a hospital environment it can be from a lot of sources; from adjacent rooms, a steady state like an HVAC system, intrusion from outside, like an airplane, or even from within the room via medical equipment. But even more complex and transient for BHMA products is that not only sound the actual product generates, but the differences in those sounds when the product is applied to a door.

Consider engaging with a consultant who specializes in impact noises- review existing papers and any government documents or studies and see if they are recommending a noise metric. There are a lot of ways to measure: DBA, LEQ, and cress factor, but BHMA need to hone in on the one measure that matters to the provided product. It's not just the A-weighted sound pressure level that needs to be measured, but you also need to have some understanding the transient nature of that A-weighted sound pressure level. Whether that would be peak hold, or what the duration of the peak is, and then there are import considerations like cress factors that describe A-Weighted sound pressure levels.

What BHMA really needs is to do is to find the metric that is most important- the Impact noise and the effect of impact noise- the measurement criteria.

Discussion on SONES and current or possible use of SONES for hardware for the metric: SONES are primarily used for steady sounds like HVAC equipment and are limited.

Another area the group could consider is finding an expert in NVH- Noise Vibration Harshness. This area is centered on sound quality. Auto industry are real experts in this area.

1. Develop a method of test -way to measure the sound
2. Develop a method to rate the product – how it is used How it relates to the human factors like annoyance and interference with sleep.
3. Determine if the standard or standards:
    a. Is it just how to measure the sound
    b. It is a rating standard- on how the product is used.
4. Application standard once you have a product measured and rated you need to have a way to determine the acoustic effect in the field or the application. How you calculate the sound for the intended occupied environment

Example, HVAC has broken theirs down into the following:

A. Standard to address how to measure the sound – like from an air conditioner
B. Standard to address how you take that measured sound and rate the product because you haven't added things like what kind of building the product is installed in, how fast it's running or the size of it.
C. Application standards – ANSI criteria

Typically, HRI develops the method of test and the ratings, but the application portion comes from ANSI S12. ANSI group S12 is a working group that develops most of the standards for criteria in buildings. But not aware of any standards that group has developed that addresses use of hardware products. It would be good to find a consultant who is also part of the S12 working group.

Curt to provide feedback on potential consultants.

Next meeting

Adjourn 3:31 PM