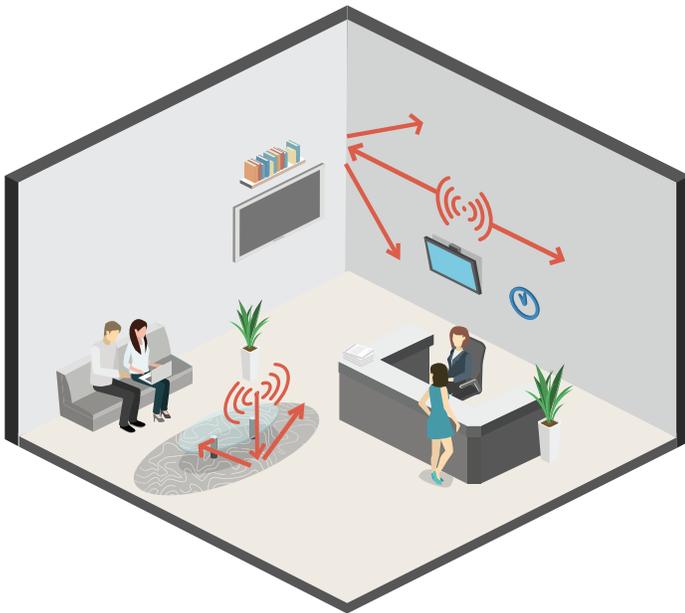


Using SAA to Create Workplace Harmony and Productivity

What is SAA?

The Sound Absorption Average (or Noise Reduction Coefficient) is a test that measures the amount of sound energy absorbed by an object such as flooring, ceiling tiles, fabric or furniture. When designing a workplace environment, using this test can help considerably for measuring acoustics. This test allows a design team to see how two different spaces with the same amount of sound energy will differ from one another. How quickly the sound dissipates and how it reflects in the space will change employees' perceptions of their workspace.



What Does SAA Measure?

Sound is measured by two variables: volume and frequency. Volume is most often measured by decibels (dB), and it refers to the amount of sound energy present. While frequency is measured in hertz (Hz) and refers to the length of the sound waves, lower frequencies have larger (or longer) waves, higher frequencies have shorter waves. When a sound comes into contact with an object, whether it is a chair, floor, wall or piece of artwork, it will do one of three things: transmit through, absorb or bounce (reflecting sound back into space). The SAA test will determine how much of the sound's volume and frequency is absorbed to determine the sound absorption value of the tested object.

How is The SAA Test Performed?

The SAA test is performed by directing sound waves at an object and measuring the amount of sound that is absorbed or reflected back into space. One of the most common methods of determining the SAA is using the ASTM Standard Test C423 for Sound Absorption. This is done in a test lab room that is designed to measure the sound absorption using a microphone and other specialized audio equipment. An initial measurement is taken by transmitting a signal into the room and measuring how much of the sound is absorbed. Then the product being tested is placed inside the same room and the sound absorption is measured at four different frequencies. The results are based on a scale of 0 to 1. An SAA of 1 means that 100% of the sound energy is absorbed by the object. While an SAA rating of 0 means that none of the sound has been absorbed. If a product gets a .75 SAA rating, that means 75% of the sound in the space is absorbed by the item and the other 25% is reflected back into space.

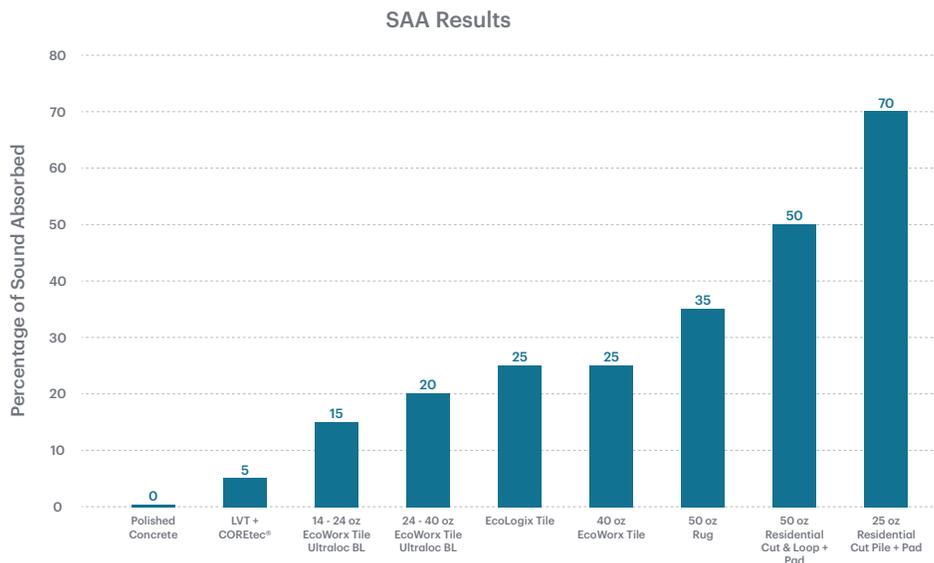
How is SAA Scaled?

A higher SAA rating means more sound is absorbed and the workspace is quieter. Softer surfaces have been found to perform better than hard since they have the ability to absorb or diffuse more sound energy which reduces the amount of sound transmitted. In particular, this is true for flooring. Soft surface flooring provides greater sound absorption with SAA ratings ranging from .15 to .7 depending on tufted weight, backing, cushion and overall construction. Hard surface flooring generally has very low SAA results ranging from 0 to .10 depending on thickness and underlayment.

What Impact Does SAA Have on the Workplace?

A noisy workplace can create both physical and psychological stress which in turn can reduce workers' productivity, interfere with communication and concentration, and potentially contribute to costly workplace accidents and injuries. By proactively using SAA testing when designing a workspace, businesses can avoid these negative consequences.

SAA Breakdown



How Does an Open Office Design Affect Concentration and Productivity?

Oxford Economics conducted a global survey of more than 1200 senior executives and non-managerial employees regarding the functionality of an open office design. They concluded that noise and distractions have a largely negative impact on productivity and collaboration. For many workers, a top priority in terms of workspace design is the ability to work without interruptions. It scored higher than other office perks such as free food. The study also uncovered that two-thirds of executives believe workers have the ability to deal with distractions appropriately, while less than half of the employees surveyed agree. The report recommends employers not only communicate with employees regarding their needs but to also dedicate quiet time, spaces and tools to allow them to conduct focused work to increase productivity and profitability.

Carpet and its Impact on the Workplace

Workplaces have historically used carpet to create a warm and welcoming environment. Originally, broadloom was the popular choice of floor covering. More recently, carpet tiles have revolutionized the design aesthetics of the modern workplace due to their ease of installation and upkeep. Harder flooring options such as polished concrete or engineered wood have become a trending choice in workspace designs. While styles and design preferences change constantly, carpet, due to its soft material composition, has maintained its position as a leading flooring solution because of higher SAA values than resilient solutions, thus creating quieter and less distracting workplace environments.

Polished Concrete and the Industrial Design Influence

Many corporate buildings are reconsidering using polished concrete as a flooring option as it comes in at the bottom of the SAA scale with a score of 0. Considering the hardness of the surface, sound waves bounce off concrete back into the workspace causing a noisy atmosphere for workers making it difficult to concentrate or listen to coworkers. When choosing this flooring, designers need to look elsewhere for noise reduction. Sound absorbing rugs, furniture or panels, cubicle partitions, lighting, plants or even adding white noise to the space are all options that can result in a more peaceful environment. Designers could also plan to designate spaces that are louder than others by clustering desks and partitioning off other areas for quieter zones.

Resilient Solutions and Their Impact

Resilient flooring options are evolving and adapting to the changing needs of the modern workplace. Resilient flooring solutions are becoming more prominent in the workplace due to visuals inspired by biophilic influences that create a sense of warmth and comfort in spaces once perceived as cold. They can even increase the SAA in a space. Some luxury vinyl tile (LVT) styles can offer a modern or industrial look that is comparable with polished concrete. However, as noted in the above chart, their SAA rating is higher than concrete.

Upping the SAA Rating with Soft Surface

After choosing a resilient flooring option and acknowledging the acoustic challenges, it is possible to buffer negative sound effects. The impact of sound can be reduced by layering your flooring with soft surface flooring, like rugs. A rug on top of a resilient floor offers a softer surface to absorb unwanted sound and adds to the aesthetic. Rugs are also a great way to instill a feeling of warmth and inspire social interaction or create wayfinding and visual spatial definition.

Citations

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ASTM Standard Test C423