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The difference between Noise Reduction Coefficient (NRC) and Sabins

Both NRC and Sabins are ways to indicate the amount of acoustic absorption being provided. Either can be used to calculate the Reverberation Time (RT) in the room to check compliance with goal criteria or values required in standards.

- NRC (Noise Reduction Coefficient) is used to define the acoustic absorption performance of large surfaces of material, such as acoustic ceilings and carpet on the floor. NRC is not used to define the absorption provided by individual sound absorbers that are placed into a room or suspended over a room, such as ceiling baffles and islands.
- Sabins are the sound absorption unit for acoustic baffles, islands and other three-dimensional sound absorbers placed or suspended inside rooms. One Sabin is equal to 1 square foot of 100 percent sound-absorptive surface. Products with higher Sabins provide more sound absorption.

Sabins is the unit of sound absorption. When the NRC of a material is multiplied by the area of the material, the result is Sabins of absorption. For example, 10 sq. ft. of a material with an NRC rating of 0.90 provides 9 Sabins of absorption. NRC cannot be used for three-dimensional absorbers hung free in space, such as islands, clouds, and baffles. Sabins of absorption are used instead.

Some manufacturers incorrectly report NRC values for these types of absorbers. As a result, some architects specify them incorrectly as well. More technically savvy manufacturers will report Sabins of absorption by frequency for their products. When dealing in Sabins, be careful with the units of area. There are Sabins and metric Sabins, depending on how the area was calculated. *Note that ASTM has phased out the use of the word Sabins, but product manufacturers still rely on and report it.*

Ref.:

Madaras, G., PhD. (n.d.). *Acoustic Absorption*. Retrieved April 25, 2019, from <https://www.rockfon.com/product-benefits/acoustics/acoustic-absorption/>

Madaras, G., PhD. (2019, May 14). *How To Absorb Open-Office Sound*. Retrieved May 24, 2019, from <https://www.commercialarchitecturemagazine.com/how-to-absorb-open-office-sound/>