

ACOUSTICAL PRODUCTS AND PERFORMANCE



Metal ceilings are generally excellent in the area of meeting architects and owners acoustic requirements. Their acoustical performance is naturally dependent on the perforations or lack thereof and the acoustic material behind those perforations.

NRC (Noise Reduction Coefficient)

To obtain a high NRC requires adequate perforations and adequate absorbing material behind the perforation to capture the sound energy and convert it into heat energy. Once a perforation has achieved about 12% open area then it captures most of the normal sound that is required to effect maximum reduction. The material that is used to capture the sound is one of two:

Fiberglass

Steel Ceilings, Inc. normally offers 1 pcf (pound per cubic foot) density material either in 1" thick to achieve about 0.70/0.75 NRC or 2" thick to achieve 0.95 NRC. The fiberglass is encapsulated in a very thin flame-retardant black polyfilm to minimize any loose fibers. The benefit of this system is its cost and ability to reach high NRC levels. Where low frequencies need to be captured, e.g. 250Hz, then specially designed fiberglass, e.g. 6" thick, can be used.

Non-woven fiber

As an alternative, Steel Ceilings, Inc. offer a thin non-woven fiber which is laminated onto the

back of the panel, and gives an NRC of 0.65/0.75. The benefit of this is that the product is an integral part of the panel and it is more difficult to separate the panel and its sound absorbing element during maintenance or access.

Wire pad spacers

Wire pad spacers are also available to create a space between back of the panel and the encapsulated fiberglass. This can be installed for ease of future painting, if necessary.

CAC (Ceiling Attenuation Class) or STC (Sound Transmission Class)

To achieve levels of up to 40 dB panels can either be non perforated or can have a metal backer plate above the fiberglass.

Background Notes:

Hertz (Hz)

Normal frequencies for human ears are usually 250Hz to 4,000Hz, with most office sounds being in the 500Hz to 2,000 Hz range. Low frequencies have long wavelengths and high frequencies have shorter wavelengths.

Decibels (dB)

Decibels are a measure of sound intensity. It is measured on a logarithmic scale.