

Auditorium Background Noise:

Ambient/background noise levels in auditoriums/concert halls – *e.g.* from noise sources such as ventilation systems, nearby traffic, *etc.* needs to be controlled such that it does not detract (or distract) from the audience’s enjoyment of the music performance. Poorly designed ventilation systems often generate $\sim 1/f$ type noise (or even resonances!) as well as broad-band noise from air flow in ducts and through grilles. Inadequate isolation from corridor noise, noisy and/or squeaky doors, *etc.* can also contribute unwanted sounds.

Over the years, Noise Criteria (NC) curves have been developed that specify maximum permissible noise levels in octave frequency bands for a particular noise rating. A specification for NC-20 (or below) requires octave-band sound pressure levels *SPL* (in *dB*) at or below the NC-20 curve shown in the figure below (*n.b.* which closely follow the Fletcher-Munson apparent loudness level curves):

