Talk

Tech

A famous musician once said, “There is no such thing as good music outdoors.” He had in mind the reflections from the walls and other surfaces of the concert hall which become very much a part of the music. The lack of such reflected energy outdoors, in his opinion, degraded the quality of the music.

It is the integrating effect of the ear which accounts for the difference between sound heard indoors and the same sound heard outdoors. I am now outdoors with the microphone about two feet from my mouth. You will notice that my voice sounds a bit flat and dead. The only reflected energy following the direct sound is a small amount reflected from the ground.

I am now in a typical living room with the microphone again about two feet from me. The sound is now well rounded and has a fullness which sounds natural and pleasing to us.

Indoors, a torrent of reflections follows the direct sound and our ears meticulously gather this later arriving, reflected energy and integrate it with the direct sound. This increases the apparent loudness of the sound and gives it that “indoor” quality. It’s a sound we are accustomed to and we have grown to like it.

Normal living rooms are small enough to insure that most of the reflected energy arrives well within the fusion time and is therefore successfully integrated with the direct sound. In large spaces, however, reflections arriving 40 milliseconds or more after the direct sound are perceived as discrete echoes which can be very annoying. But that is another story. In this lesson, we have been primarily interested in sound energy arriving at our ears during the first 20 or 30 milliseconds, which is integrated in a helpful, constructive way.