“WACHUWANNANO” is a question and answer feature that answers reader’s questions on technical aspects of the wall and ceiling industry. AWCI’s Technical Staff is available through this column to be your personal consulting firm to answer your specific technical questions.

If you need more information or more details to help you do your job better, just tell us WACHUWANNANO and we’ll get back to you in an upcoming issue.

STC Rated Partitions

Q: We are building an STC rated partition between offices in the same suite. There is an acoustical tile ceiling suspended from the roof deck forming a plenum that tapers from about two feet at the outside walls to six feet at the ridge. My question is, do we need to continue to partition to the roof deck or can it be terminated six inches above the ceiling? And what does this do, if anything, to the STC rating?

A: Sound is transferred from one room (compartment) to the next through two basic mechanisms: airborne sound and structure-borne sound. In this building, it is likely that the primary concern of the designer is with airborne sound transmission. Airborne sound or noise has a lot of the properties of fluid flow; it moves through the path of least resistance. It travels around building systems, designed to slow sound transmission, through what are known as “flanking paths.” This flanking sound will find a hole through, over, around, or under a sound rated partition. Terminating the partition a few inches above the ceiling, or for that matter at any point short of the roof deck, can and most likely will reduce the effective STC of the partition. The answer to your question will be affected if the ceilings of both rooms are rated for STC based on the two room method. This method evaluates a ceiling’s ability to block sound from moving up through the ceiling in one room, over the top of a partition, and down through the ceiling in the next room.

If the STC ratings of the two ceilings are equal to or greater than the STC rating of the partition, then you could safely assume that terminating the partition six inches above the ceiling would not jeopardize the STC of the partition. However, the overall amount of sound going from one room into the next would still be greater than if the partition were carried to the roof deck. This is because the combined effect of the STC of the full height partition and the rated ceiling is lost by terminating the ceiling in the plenum. If the STC of either or both of the ceilings is lower than the STC of the partition, the partition should be continued to the roof deck to maintain the STC integrity. The use of mineral or glass fiber blankets on top of the ceiling, spanning a truncated partition, may or may not do the trick. The best bet is to run the partition all the way to the deck unless specific test results show that you can do otherwise.

In either event, it is always best to clear any changes with the designer or owner before proceeding on your own. Good luck.