

Concert Hall Background from Acoustician Paul Scarbrough

1. The New Concert Hall's acoustics are a function of its cubic volume (that is, how much air is enclosed within the walls, floor and roof), its shape and its materials of construction. Each of these plays a critical role in shaping the sound of the New Concert Hall.
2. The Ordway Concert Hall is modeled on the classic shoebox-shaped concert halls of Europe and the United States, spaces like the Grosser Musikvereinssaal in Vienna and the Tonhalle in Zurich. Like the Ordway Concert Hall, these spaces feature strong resonance balanced with exceptional clarity.
3. The narrow width of the room (a little over 72-feet) places it midway between the Musikvereinssaal and Boston's famed Symphony Hall. This width helps to promote a sense of envelopment, the feeling that the listener is completely immersed in the sound of the orchestra.
4. The wall panels are constructed of glass fiber reinforced gypsum, essentially a high-tech version of plaster. The shaping of these panels was developed by the architects at HGA to respond to our acoustical criteria for diffusion. Diffusion is the scattering of sound in the space. It helps to ensure even distribution of sound in a space and to temper the treble frequencies to avoid a brittle sound quality. The shaping in the Ordway wall panels varies in depth and width to ensure adequate diffusion at both mid-frequencies and high frequencies.
5. The most striking visual feature in the space (the wood ceiling) is actually designed to be transparent to sound. Sound waves pass through the wood screen to fill the upper volume of the Concert Hall and then return to the musicians and audience below. The ceiling also conceals lighting catwalks, acoustical canopies over the stage and some of the acoustical drapery system.
6. A series of acoustical draperies and banners can be deployed above the wood ceiling and down along the side walls of the hall to dampen the Concert Hall's acoustics to be better suited for amplified music. This allows the hall to alternate between a resonant acoustic for The Saint Paul Chamber Orchestra and a crisp clear acoustic for amplified contemporary music.
7. Massive concrete walls and a double slab roof help protect the New Concert Hall from noise on adjacent streets and in the air. An acoustical break between the Concert Hall structure and the Marzitelli Foyer help ensure that the Music Theater and Concert Hall can present events simultaneously without interference.
8. Extensive wiring infrastructure has been incorporated into the New Concert Hall to support sound amplification, audio recording and high-definition video recording.