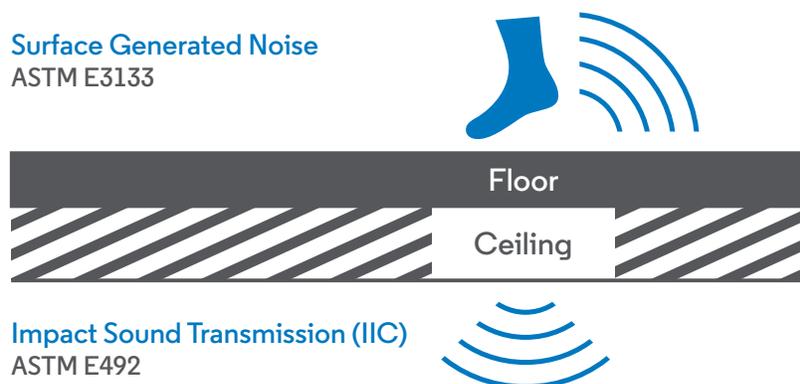


ACOUSTIC BULLETIN

# Updated Floor Impact Sound Test Data from Ecore

Ecore is a manufacturer of safe, ergonomic, and acoustic performance surfaces for commercial and athletic markets. As an innovator in acoustic products and testing, Ecore teamed with the University of Hartford and the Paul S. Veneklasen Research Foundation in 2015 to conduct testing on floor impact sound. In 2018, ASTM introduced a new standard for measuring the floor impact sound of floor coverings (ASTM E3133). As part of Ecore’s commitment to acoustics and transparency, it had an independent lab test seven surfaces (concrete, VCT, LVT, unbacked sheet vinyl, calendared rubber, Ecore Vinyl Rx, and Ecore Aurora Rx) to the new standard.

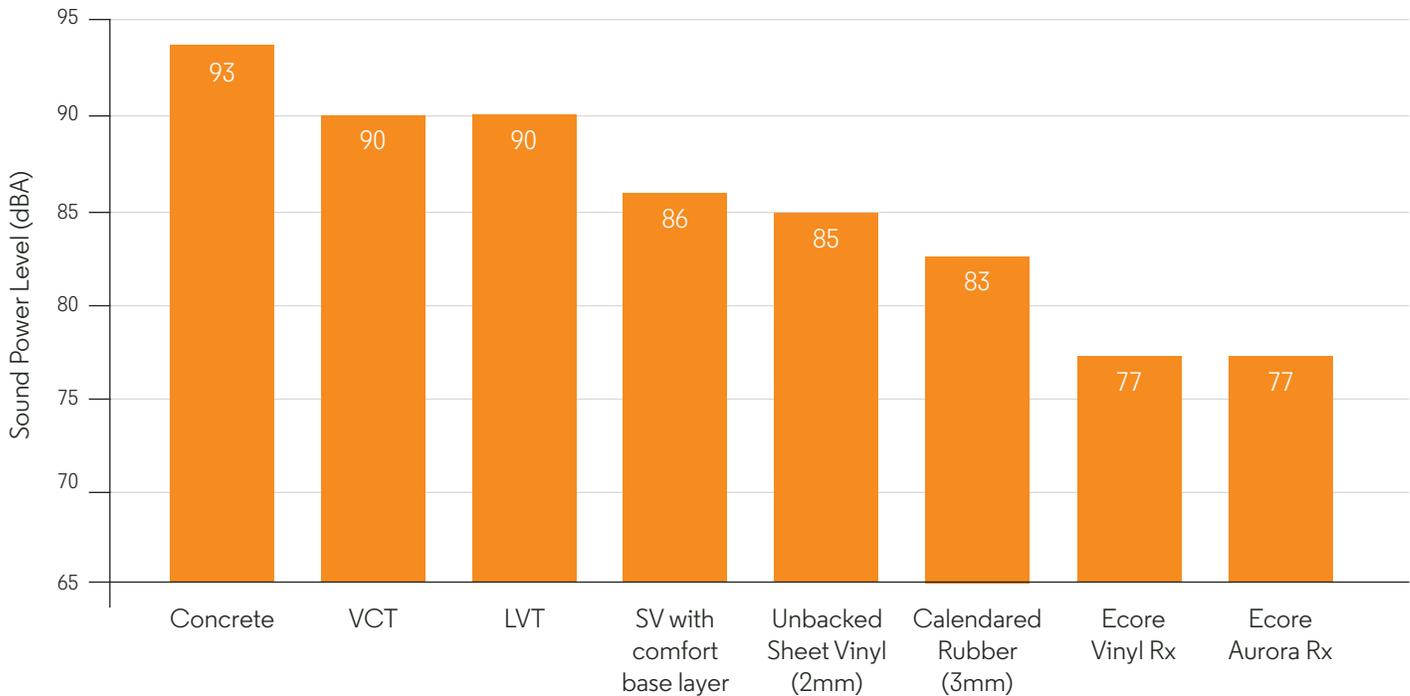
Floor impact sound is the noise produced in a room from an impact on the floor in the same room; examples include rolling carts and the click of high heels on a tile surface. Floor impact sound can be a major source of noise in a multitude of spaces, such as hospitals, schools, and offices.



Noise is of special concern in hospitals, where it consistently ranks as one of the two lowest scoring items on the HCAPHS patient surveys. Guidelines from the Facilities Guidelines Institute (FGI) set forth “Maximum Design Criteria for Noise in Interior Spaces.” However, these criteria are for building systems and are based on unoccupied rooms; thus, these criteria do not take into account noises, such as footsteps, generated by building occupants.

ASTM E3133 helps address this gap and provides the healthcare designer with a key acoustic metric for the healing environment. Testing to ASTM standards (like E3133) allows architects and designers to make an “apples-to-apples” comparison of the performance of products from various manufacturers.

## Floor Impact Sound Levels (per ASTM E3133)



Testing was performed by Intertek, an independent IAS-certified lab in York, PA. The “SV with comfort base layer” sound level was provided from the manufacturer’s published test data.

### FINDINGS

- Floor impact sound from generic VCT and LVT was 13 decibels (dB) higher than the floor impact sound from Ecore’s Vinyl Rx and Aurora Rx, (vinyl and calendared rubber surfaces respectively with a vulcanized composition rubber [VCR] backing). A 13dB increase in noise level is equivalent to 2.5 times louder in terms of perceived loudness.
- Floor impact sound levels for Vinyl Rx and Aurora Rx were also below the VCT and LVT levels at almost all frequencies. At high frequencies, VCT is as much as 24dB louder than Vinyl Rx. That is more than four times as loud.
- Floor impact sound levels for Ecore’s Vinyl Rx and Aurora Rx were significantly lower than other common flooring surfaces for hospitals, such as 2 mm sheet vinyl, 3 mm calendared rubber and sheet vinyl (SV) with a comfort base. With test results from 6 to 9 decibels higher, these common flooring surfaces are 50% to 87% louder than Ecore’s Vinyl and Aurora Rx in terms of their perceived loudness.

### CONCLUSION

The new ASTM E3133 test protocol provides a standardized method for analyzing flooring impact sound generated and measured within a space. This standard may provide an accurate comparison of acoustic data when considering flooring products.

In each case, the comparative test results of resilient products commonly used in healthcare environments indicate that a product with a VCR backing fusion bonded to a high-performance top layer can dramatically reduce the perceived loudness in the space. Noise generated within the space from Floor Impact Sound can typically result from footsteps, rolling traffic and dropped items.

The data show that Ecore’s Vinyl Rx and Aurora Rx flooring significantly reduce the “click” (the high frequency portion) of footsteps that is especially prominent with high-heels and hard-soled shoes on hard floor surfaces.